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ABSTRACT OF THE DISCLOSURE

A fuel reforming apparatus includes a reforming catalyst, a filtering member, a raw material supply flow passage and a processed gas flow passage. The filtering member has a plurality of cells. A reforming catalyst is carried on a surface of a partition on the side of the processed gas flow passage. If raw gas including hydrocarbon fuel is supplied to the fuel reforming apparatus and filtered by the filtering member, soot included in the raw gas is trapped by gaps in the partition, and the hydrocarbon fuel is reformed into reformed gas including hydrogen and carbon monoxide on the reforming catalyst. By increasing the amount of air supplied from a blower at intervals of time, the soot trapped by the partition is removed by combustion.